REMARKS

Claims 2, 17, 19, and 20 are pending in this application. By this Amendment, claim 2 is amended, and claims 19 and 20 are added. Support for the amendments to claim 2 may be found, for example, in the specification at page 20, lines 15–19; page 88, lines 16-18; and Figures 7–9 and 12–15. Support for new claim 19 may be found, for example, in the specification at page 49, lines 2–19, and page 82, line 19 to page 83, line 12. Support for new claim 20 may be found, for example, in claim 17. No new matter is added.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

I. Rejection Under 35 U.S.C. §103(a)

The Office Action rejects claims 2 and 17 under 35 U.S.C. §103(a) as having been obvious over the combination of JP 04-319260 to Watanabe et al. ("Watanabe") and JP 09-147916 to Inoue et al. ("Inoue"). Applicants respectfully traverse the rejection.

By this Amendment, claim 2 is amended to recite that the "zirconium and magnesium are uniformly dispersed on a surface of the lithium cobaltate particle." The specification at page 24, lines 3 to 11, describes the effects of zirconium and magnesium being uniformly dispersed:

> Correspondingly, not only the zirconium but also the magnesium uniformly existing on the surface keep the charge of the lithium-transition metal composite oxide stable when lithium is released by charging and suppresses oxygen release, thereby stably maintaining the crystal structure during charge to high potentials. Thus, the thermal stability at high charging potentials improves without deteriorating excellent cycle characteristics and high rate characteristics at high charging potentials.

The asserted combination of Watanabe and Inoue would not have rendered obvious this feature of the subject matter of claim 2 for at least the following reasons.

The specification demonstrates that the methods used to obtain a positive active electrode material impart distinct structural features to the final product. For instance, Example 4-1 describes a process where aqueous solutions of cobalt sulfate, zirconium oxychloride, and magnesium sulfate were coprecipitated together to form a single precipitation product, which was then mixed with lithium carbonate, which was then calcined to obtain the final product. *See* specification, pages 82–83. The positive electrode active material obtained in Example 4-1 was lithium cobaltate containing 0.5 mol% zirconium and 0.5 mol% magnesium. The EPMA results indicated that zirconium and magnesium existed uniformly on the surface of the positive electrode active material obtained. The existence ratios of zirconium and magnesium on the particle surface were respectively 32% and 73%. *See* specification, page 92, lines 15–22.

Example 1-4 describes a slightly different process to obtain the final product. The difference here is that only cobalt sulfate and zirconium oxychloride were coprecipitated together to form the precipitated product; the precipitated product was then mixed with lithium carbonate and magnesium hydroxide and calcined to obtain the final product. *See* specification, pages 84–85. The positive electrode active material obtained in Example 1-4 was lithium cobaltate containing 0.5 mol% zirconium and 0.5 mol% magnesium. *See* specification, page 92, lines 7–9. Thus, compositionally, the positive electrode active material obtained in Example 1-4 was the same as that obtained in Example 4-1. However, the EPMA results indicated that zirconium existed uniformly but magnesium was greatly segregated on the surface of the positive electrode active material obtained in Example 1-4. *Id.* at lines 9–12. Furthermore, the existence ratios of zirconium and magnesium on the particle surface were respectively 51% and 6%, which is much different from that obtained in Example 4-1. *Id.* at lines 12–14.

Thus, Applicants' disclosure demonstrates that uniform existence of an element on the surface of the lithium cobaltate particle is not a property inherent to the compositional constitution of the positive electrode active material, but is instead a property dependent on the method of manufacture.

Additionally, the specification shows that the positive electrode active material obtained in Example 4-1 (uniformly dispersed Zr and Mg) is significantly different in thermal stability from that obtained in Example 1-4 (Zr is uniformly dispersed but not Mg). Table 5, found on page 110 of the specification, shows that Example 4-1 has a heating starting temperature of 140.9°C, whereas the heating starting temperature of Example 1-4 was 129.0°C.

Watanabe does not expressly describe that Zr is uniformly dispersed on a surface of lithium cobaltate particles, nor does it teach a coprecipitation method for producing its positive electrode active material. Instead, in its Examples, Watanabe discloses methods where ZrO_2 is added to a mixture of Li_2CO_3 and $CoCO_3$ and calcined in air at 900°C for five hours. Thus, because Watanabe teaches a different process from that disclosed in Applicants' specification, it cannot be reasonably said that Watanabe's process would result in a positive electrode active material where Zr is uniformly dispersed on a surface of lithium cobaltate particles.

Inoue does not cure this deficiency of Watanabe. Inoue describes that the positive active material is compoundable by a solution reaction method and by a calcinating method, but the calcinating method is preferred. *See* paragraph [0037]. Inoue provides very little in the way of further details regarding the solution reaction method. *See* Inoue, Example at paragraph [0057]. Inoue certainly does not provide a detailed description of any method that corresponds to the methods described in Applicants' specification that results in the uniform dispersion of an element on the surface of lithium cobaltate particles. Furthermore, Inoue

does not teach or suggest the desirability to have a surface element be uniformly dispersed. Therefore, Inoue fails to cure the deficiencies of Watanabe.

Thus, the combination of Watanabe and Inoue would not have rendered obvious the invention of claim 2 as a whole. For at least the same reasons, claim 17, which depends from claim 2, also would not have been rendered obvious by the combination Watanabe and Inoue. Reconsideration and withdrawal of the rejection are respectfully requested.

II. New Claim

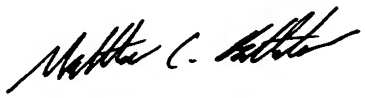
By this Amendment, claims 19 and 20 are added. Because claims 19 and 20 variously depend from claim 2, they distinguish over the applied references for at least the reasons discussed above with respect to claim 2. Thus, examination and allowance of claims 19 and 20 are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: July 17, 2009

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